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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/690,566	10/23/2003	Gopal S. Revankar	007300-084	5983
21839	7590	11/16/2005		
BUCHANAN INGERSOLL PC (INCLUDING BURNS, DOANE, SWECKER & MATHIS) POST OFFICE BOX 1404 ALEXANDRIA, VA 22313-1404			EXAMINER ZIMMERMAN, JOHN J	
			ART UNIT	PAPER NUMBER
			1775	

DATE MAILED: 11/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/690,566

Applicant(s)

REVANKAR ET AL.

Examiner

John J. Zimmerman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/1/05.
2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 5-31 is/are pending in the application.
4a) Of the above claim(s) 11-31 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1,2 and 5-10 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 23 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 20050901.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

SECOND OFFICE ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I (current claims 1-2 and 5-10) in the reply filed on September 1, 2005 is acknowledged. The traversal is on the ground that that no serious burden exists in examining all the pending claims. This is not found persuasive because for purposes of the initial requirement, a serious burden on the examiner may be *prima facie* shown if the examiner shows by appropriate explanation of separate classification, or separate status in the art, or a different field of search (as defined in MPEP § 808.02). The restriction requirement clearly meets this requirement. While that *prima facie* showing may be rebutted by appropriate showings or evidence by the applicant, the mere statement by applicant that no serious burden would exist in the examination of all pending claims does not qualify as an "appropriate showing" or "evidence". See MPEP 803. The requirement is still deemed proper and is therefore made FINAL.

2. This application contains claims 11-31 drawn to an invention nonelected with traverse in Paper No. 20050901 (received September 1, 2005). A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144). See MPEP § 821.01.

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Information Disclosure Statement

3. The "SECOND INFORMATION DISCLOSURE STATEMENT" received September 1, 2005 has been considered. An initialed form PTO-1449 is enclosed with this Second Office Action.

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. The prior provisional rejection of the pending claims under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-6, 26-31 and 34 of copending U.S. Patent Application Serial No. 10/090,617 in view of Amano (U.S. Patent 6,414,258), has been overcome by the Terminal Disclaimer received September 1, 2005.

6. Claims 1-2 and 5-10 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9, 15-22 and 27-32 of copending U.S. Patent Application Serial No. 10/171,193 in view of Amano (U.S. Patent

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6,414,258). U.S. Patent Application Serial No. 10/171,193 was cited in the applicant's Second Information Disclosure Statement received September 1, 2005. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims to the copending application are drawn to a track pin bushing joint with a wear-resistant coating comprising an alloy comprising at least 60 weight % iron, cobalt, nickel or alloys thereof and the claims of the pending application are drawn to a sprocket with a wear-resistant coating comprising an alloy comprising at least 60 weight % iron, nickel or alloys thereof. As evidenced by Amano (e.g. see first paragraph of column 1; Figure 37), applying hard coatings to both the bushings and the sprockets of endless track drive mechanism is conventional in the art since sprocket gear wheels contact track bushings in endless track drive mechanisms. It would have been obvious to one of ordinary skill in the art at the time the invention was made that both the sprockets and the track bushing joints of an endless track drive mechanism should be surfaced with of hard materials having compatible wear properties so that neither the track bushing nor the sprocket limit the service life of the endless track drive mechanism. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-2 and 5-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Amano (U.S. Patent 6,414,258) in view of Revankar (U.S. Patent 5,879,743) and further in view of Heaslet (U.S. Patent 2,271,172).

9. Amano discloses applying a hard overlay coating to the teeth of a sprocket made of steel (e.g. see steel base material composition in Table 1; Figure 3). The overlay coating is applied using a weld wire (e.g. KC-50 - a mild steel) and includes wear resistant particles (e.g. see column 14, lines 17-38). The articles can be subjected to induction hardening (e.g. see column 10, lines 30-36) and the sprocket appears to be arcuate segments (e.g. see Figure 1). Amano differs from the pending claims in that Amano discloses hardfacing for steel surfaces but only gives one example (e.g. KC-50) of a hardfacing composition. Revankar, however, discloses that hardfacing steel surfaces (e.g. see column 6, lines 46-50) with wear-resistant coatings comprising an alloy comprising at least 60 weight % iron, cobalt or nickel is well known in the art (e.g. see column 6, last paragraph; see Table 1). Nickel in iron based alloys is specifically disclosed (e.g. see column 7, line 2). In the first embodiment, coatings having a thickness of about 0.75 mm can be formed (e.g. column 4, line 35) while thicker coating are disclosed in alternate embodiments. The substrates can be heat treated according to conventional procedures (e.g. see paragraph spanning columns 5 and 6). Revankar discloses that gears would be suitable articles for his hardfacing compositions (e.g. see column 5, lines 25-40). In view of the fact that a toothed gear and a toothed sprocket can be the same configuration, there is no difference between a generic gear and a generic sprocket. In view of Revankar, it would have been obvious to one of ordinary

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skill in the art at the time the invention was made to use hard facing alloys comprising at least 60 weight % iron, cobalt or nickel for the sprocket of Amano because Revankar clearly shows that such hard facing compositions are recognized in the art as particularly useful for hardfacing toothed mechanical parts. Amano also may differ from claim 5 in that Amano may not require that the weld overlay coating have a thickness of 1-2 mm. It would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the thickness of the weld overlay for the expected wear conditions of any particular sprocket because thicker overlays can be less economical. Amano also may differ from claim 7 in that Amano may not require a one-piece ring. Heaslet, however, shows that one-piece sprockets are considered a conventional configuration in the prior art (e.g. see Figures 1 and 3). In view of Heaslet, it would have been obvious to one of ordinary skill in the art to apply the overlay coatings of Amano to one-piece sprockets because this is a conventional sprocket form and it would be understood in the mechanical art that one-piece parts can have advantages by limiting the number of different parts and reducing potential structural problems created by joints. In addition, the use of multiple parts would be understood by the skilled artisan to potentially have advantages in ease of manufacture over larger and more complex one-piece parts. For these reasons, barring patentably distinct results, it generally accepted that forming an article in one piece or separate pieces is mere matter of engineering choice depending on which advantages are considered more beneficial at the time of manufacture, *Howard v. Detroit Stove Works*, 150 U.S. 164; *In re Lockhart*, 90 USPQ 214; *In re Fridolph*, 135 USPQ 319.

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10. Claims 1-2 and 5-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Revankar (U.S. Patent 5,879,743) in view of applicant's disclosure of the prior art and Amano (U.S. Patent 6,414,258).

11. Revankar discloses hardfacing steel surfaces (e.g. see column 6, lines 46-50) with wear-resistant coatings comprising an alloy comprising at least 60 weight % iron, cobalt or nickel (e.g. see column 6, last paragraph; see Table 1). Nickel in iron based alloys is specifically disclosed (e.g. see column 7, line 2). In the first embodiment, coatings having a thickness of about 0.75 mm can be formed (e.g. column 4, line 35) while thicker coating are disclosed in alternate embodiments. The substrates can be heat treated according to conventional procedures (e.g. see paragraph spanning columns 5 and 6). Revankar may differ from the claims in that Revankar may not specifically describe sprockets as item subject to his hardfacing compositions.

Revankar, however, does disclose various types of machine parts, including gears, that would be suitable for his hardfacing compositions (e.g. see column 5, lines 25-40). In view of Revankar's specific disclosure of gears, the applicability of Revankar's coatings to toothed machinery parts would be understood by one of ordinary skill in the art. In addition, applicant discloses that hardened surfaces are typically applied to sprockets in the prior art (e.g. see Background of the Invention; pages 1-4). Amano (e.g. column 1, first paragraph) further confirms that it is conventional to hardface sprockets in the prior art and clearly discloses that heat treatments for hardfaced sprockets are understood in the art to be suitably carried out by induction hardening type processes (e.g. see column 10, lines 30-36). In view of applicant's disclosure of the prior art and Amano, it would have been obvious to one of ordinary skill in the art at the time the

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invention was made to use Revankar's hardfacing coatings on sprockets because Revankar clearly discloses that these coatings can be used on any machine parts and sprockets have been shown to be prime candidates for wear resistant hard coatings. In addition, the use of induction hardening to carry out the hardening steps is clearly shown by Amano to be understood by those skilled in the art as a suitable method for carrying out heat treatments of hardfaced articles. In view of Amano, it would have been obvious to one of ordinary skill in the art to use induction heating to carry out the heat treatments of Revankar because Amano shows that induction heating is a type of heat treating process typically used in the art for hardening hardfaced toothed articles in the art. In any event, on the issue of induction hardening, Revankar clearly discloses using heat treatments and when there is a substantially similar product, as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct not the examiner to show that the same process of making, see *In re Brown*, 173 U.S.P.Q. 685, and *In re Fessmann*, 180 U.S.P.Q. 324. Regarding the use of applicant's disclosure of the prior art in this rejection, it is axiomatic that consideration of the prior art cited by the examiner must, of necessity, include consideration of the admitted state of the art found in applicant's specification, *In re Davis*, 305 F.2d 501, 134 USPQ 256 (CCPA 1962); *In re Hedges*, 783 F.2d 1038, 228 USPQ 685 (Fed. Cir. 1986). Admitted knowledge in the prior art may be used in determining patentability of the claimed subject matter, *In re Nomiya*, 509 F.2d 566, 184 USPQ 607 (CCPA 1975). Regarding claims 7-9, it would have been obvious to one of ordinary skill in the art to apply the overlay coatings of Amano to one-piece sprockets because this is a conventional sprocket form and it would be understood in the mechanical art that one-piece parts can have advantages by limiting the number of different parts and reducing potential structural

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problems created by joints. In addition, the use of multiple parts would be understood by the skilled artisan to potentially have advantages in ease of manufacture over larger and more complex one-piece parts. For these reasons, barring patentably distinct results, it generally accepted that forming an article in one piece or separate pieces is mere matter of engineering choice depending on which advantages are considered more beneficial at the time of manufacture, *Howard v. Detroit Stove Works*, 150 U.S. 164; *In re Lockhart*, 90 USPQ 214; *In re Fridolph*, 135 USPQ 319.

Response to Arguments

12. Applicant's arguments filed September 1, 2005 have been fully considered but they are not persuasive with regards to the pending rejections.

13. The provisional rejection of the pending claims under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-6, 26-31 and 34 of copending U.S. Patent Application Serial No. 10/090,617 in view of Amano (U.S. Patent 6,414,258), has been overcome by the Terminal Disclaimer received September 1, 2005.

14. The rejections of the claims under 35 U.S.C. 102(b) as being anticipated by Amano (U.S. Patent 6,414,258), Crain (U.S. Patent 5,425,222) and Revankar (U.S. Patent 5,879,743) have been withdrawn in view of applicant's amendments and arguments.

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15. Regarding Amano (U.S. Patent 6,414,258), applicant argues that Amano discloses a "composite material" and not an alloy. The examiner notes that applicant's "comprising" language certainly allows for additional constituents (e.g. hard particles) and that KC-50 clearly has alloying constituents in addition to the ferrous base material. Applicant also argues that Amano does not disclose nickel in the composition as is now claimed. To address this issue created by applicant's amendment, Revankar (U.S. Patent 5,879,743) has been combined with Amano. Revankar clearly discloses that hardfacing steel surfaces (e.g. see column 6, lines 46-50) with wear-resistant coatings comprising an alloy comprising at least 60 weight % iron, cobalt or nickel is well known in the art (e.g. see column 6, last paragraph; see Table 1). Nickel in iron based alloys is specifically disclosed (e.g. see column 7, line 2). Revankar discloses that gears would be suitable articles for his hardfacing compositions (e.g. see column 5, lines 25-40). In view of the fact that a toothed gear and a toothed sprocket can be the same configuration, there is no difference between a generic gear and a generic sprocket. In view of Revankar, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use hard facing alloys comprising at least 60 weight % iron, cobalt or nickel for the sprocket of Amano because Revankar clearly shows that such hard facing compositions are recognized in the art as particularly useful for hardfacing toothed mechanical parts.

16. Regarding Revankar (U.S. Patent 5,879,743), applicant argues that this reference does not use induction hardening. It is noted, however, that Revankar does use heat treatments and when there is a substantially similar product, as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct not the examiner to show that

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the same process of making, see *In re Brown*, 173 U.S.P.Q 685, and *In re Fessmann*, 180 U.S.P.Q. 324. In any event, Amano (e.g. column 1, first paragraph) further confirms that it is conventional to hardface sprockets in the prior art and clearly discloses that heat treatments for hardfaced sprockets are understood in the art to be suitably carried out by induction hardening type processes (e.g. see column 10, lines 30-36). The use of induction hardening to carry out the hardening steps is clearly shown by Amano to be understood by those skilled in the art as a suitable method for carrying out heat treatments of hardfaced articles. In view of Amano, it would have been obvious to one of ordinary skill in the art to use induction heating to carry out the heat treatments of Revankar because Amano shows that induction heating is a type of heat treating process typically used in the art for hardening hardfaced toothed articles in the art.

Conclusion

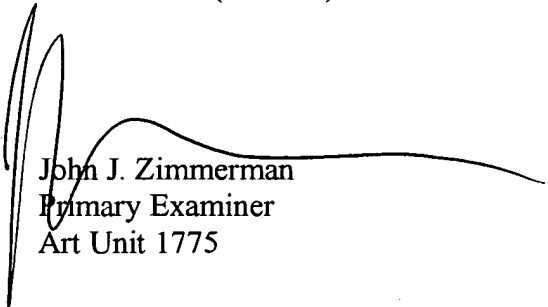
17. Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on September 1, 2005 prompted the new obviousness-type double patenting rejection (SN 11/171,193) in this office action. Applicant's amendment's to the claimed coating composition necessitated new rejections to address the newly claimed coating composition and new combinations of claim limitations. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609.04(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened

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statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John J. Zimmerman whose telephone number is (571) 272-1547. The examiner can normally be reached on 8:30am-5:00pm, M-F. Supervisor Deborah Jones can be reached on (571) 272-1535. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

19. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John J. Zimmerman
Primary Examiner
Art Unit 1775

jjz
November 7, 2005